

L18: (3) 2 and carrie... | US 4393491 | Tag: S.P.T1 | Doc: 3/3 | "Full" 1/62

L18: (3) 2 and carrie... | US 4393491 A | Tag: S.P.T1 | Doc: 3/3 | Format

**United States Patent [b]**  
Ashlock et al.

**(11)** 4,393,491  
**(43)** Jul. 12, 1983

**(54)** AUTOMATIC SELF-TEST SYSTEM FOR A DIGITAL MULTIPLEXED TELECOMMUNICATION SYSTEM

**(73) Inventor** Robert L. Ashlock, Diamond Bar, Carl E. Gehrke, Santa Ana, Douglas P. Kerr, Irvine, David J. Rasmussen, Riverside, Theodore M. Simeone, San Mateo, Charles W. Tiedt, Tustin, all of Calif.

**(73) Assignee** American Telephone & Telegraph Company, Greenwich, Conn.

**(21) Appl. No.** 204,300

**(22) Filed** Nov. 8, 1978

**(23) Int. Cl.** H04J 3/00

**(25) U.S. Cl.** 370/13, 371/21, 371/21

**(36) Field of Search** 370/13, 371/21, 371/21, 370/17, 371/21, 371/21, 370/17, 371/21, 370/17/175.2 R

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**ART-UNIT:** 234  
**PRIMARY-EXAMINER:** Robinson, Thomas A.  
**ATTY-AGENT-FIRM:** Knobbe, Martens, Olson & Bear

**ABSTRACT:**

An automatic self-test apparatus for use in a digital multiplexed communication system and self-testing idle circuitry coupled to idle telephone lines. The apparatus utilizes a tone generator which generates digital words describing an analog test signal and a detector which detects digital data on the internal data bus which describes this self-test analog signal. The data from the tone generator is coupled to the circuitry connected to the idle line through a time division multiplexer under the control of a controller consisting of a programmed microprocessor. The microprocessor controls when the transfer is made and to which telephone line it is directed. This control is accomplished by writing a control word to a multiplexer naming the source and destination for the transfer and the time slot in which it is to occur. When the circuitry connected to the idle line functions properly, the controller proceeds to the next idle line. If a malfunction is detected, the controller sets an alarm.

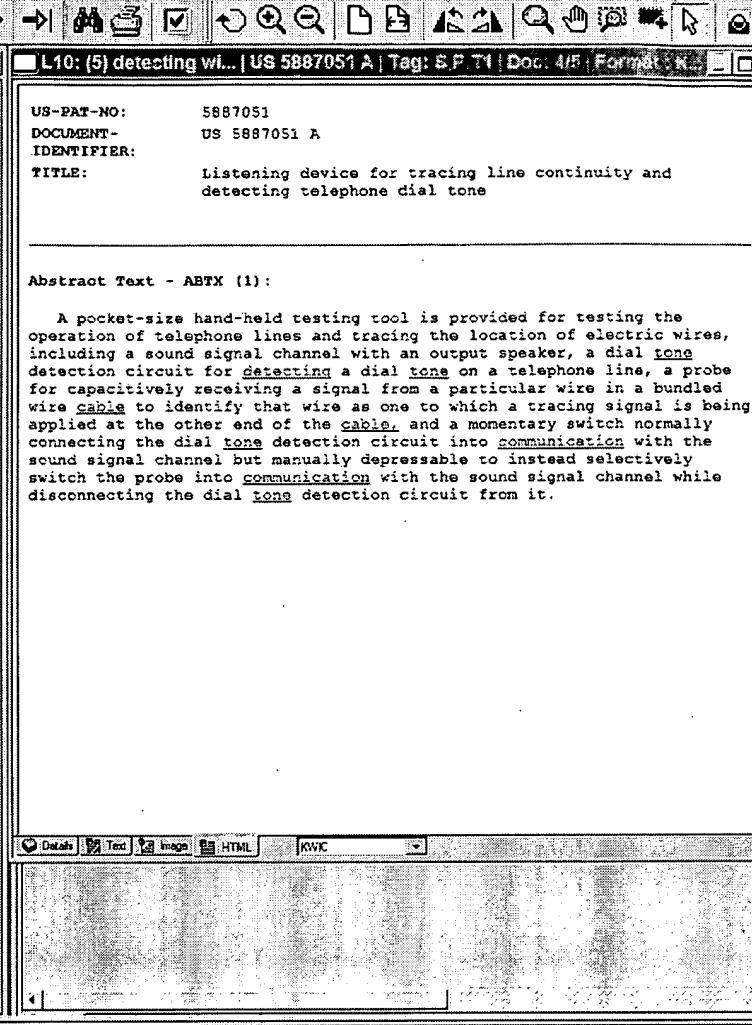
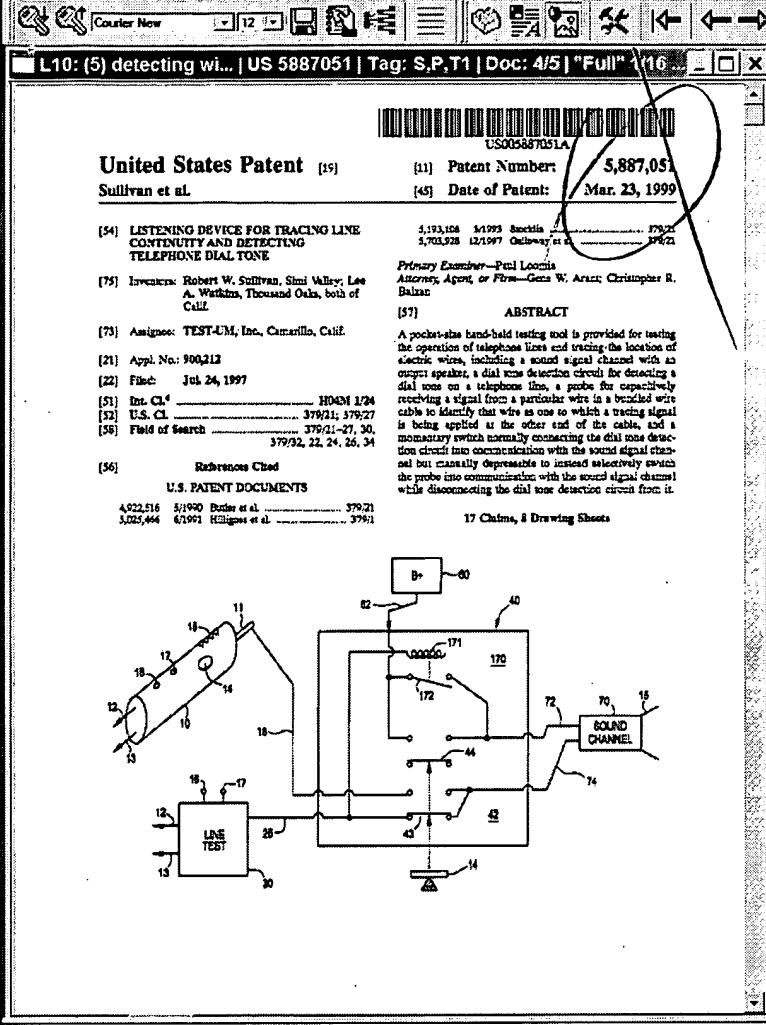
34 Claims, 15 Drawing figures

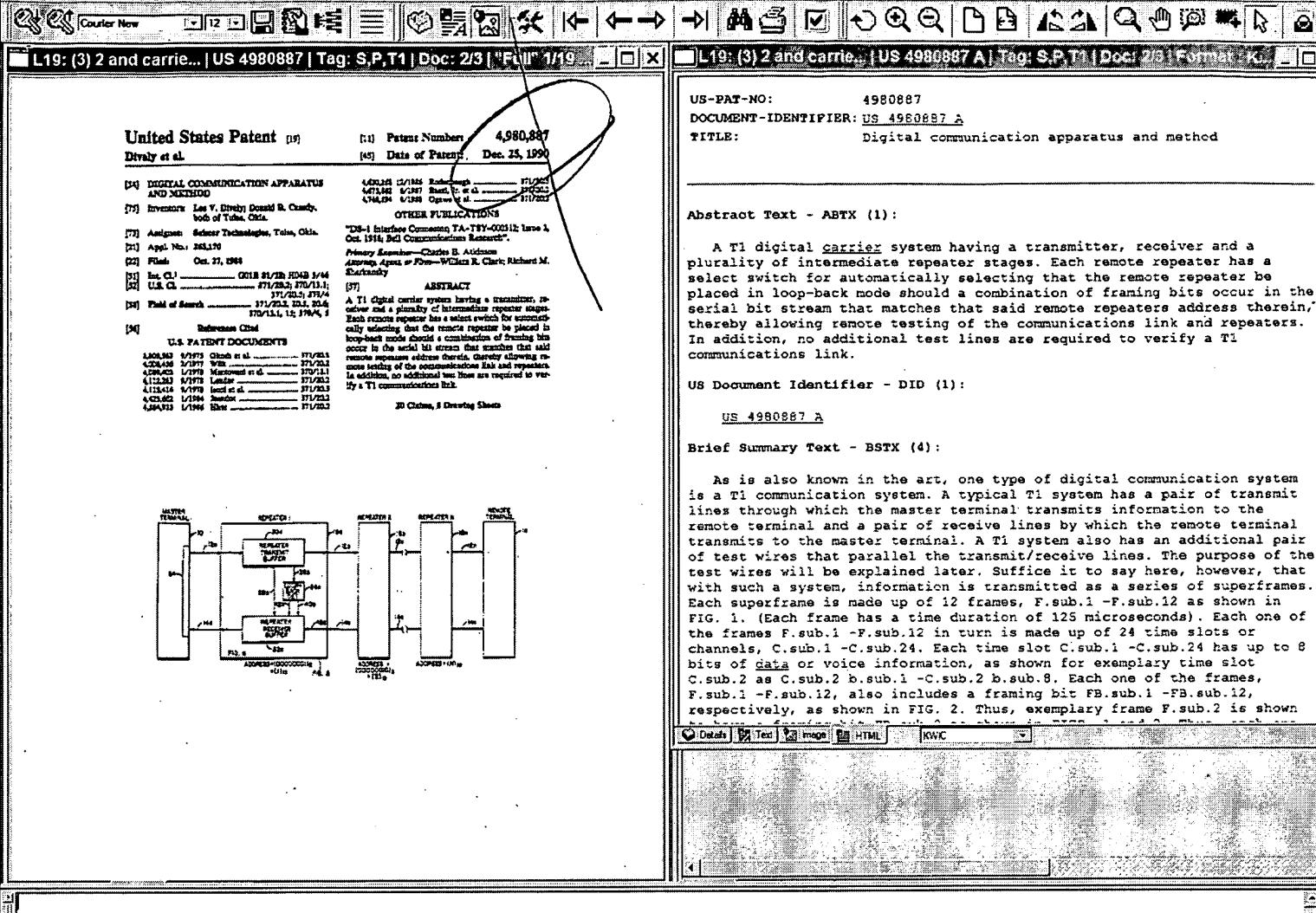
Exemplary Claim Number: 1

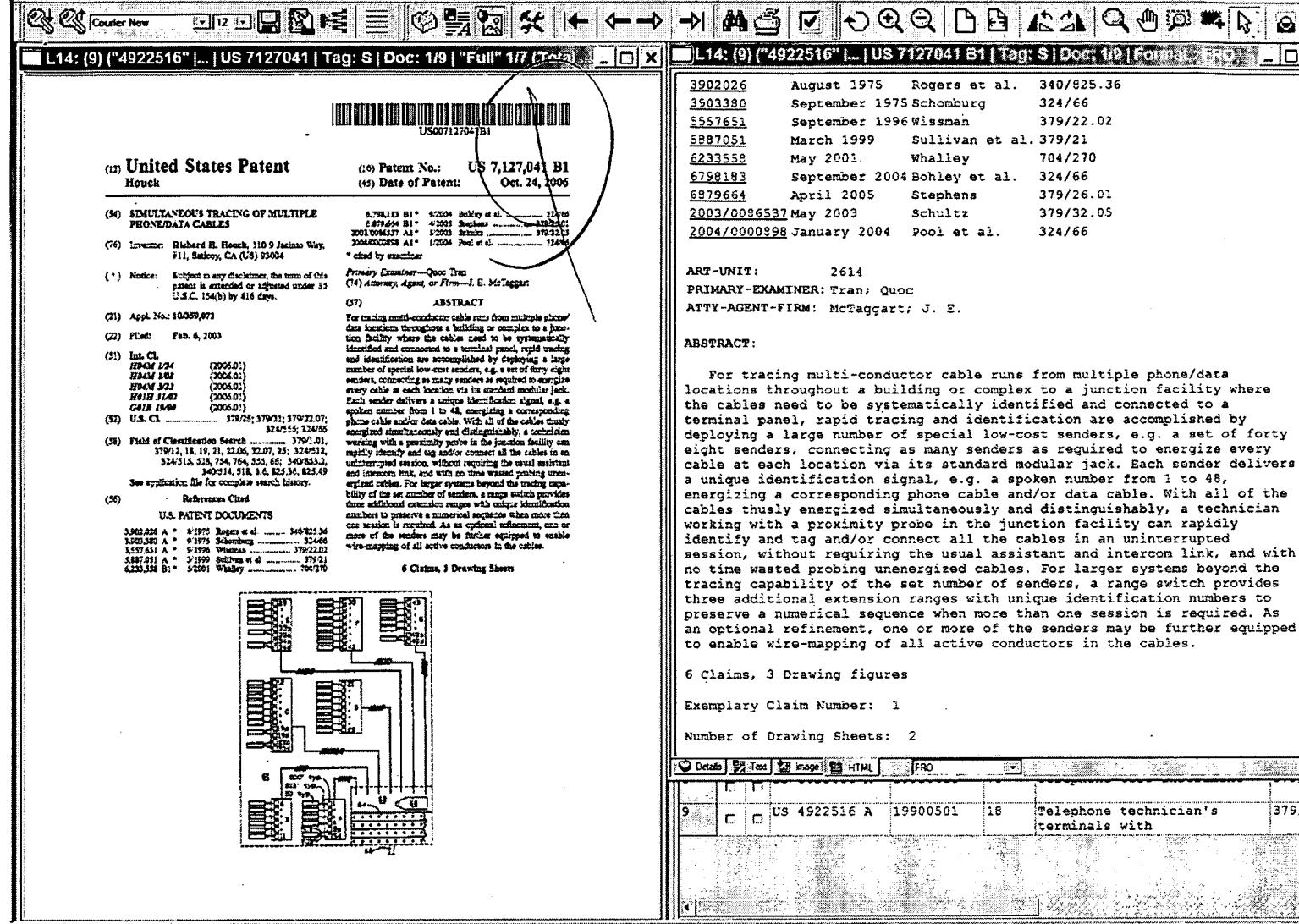
Number of Drawing Sheets: 12

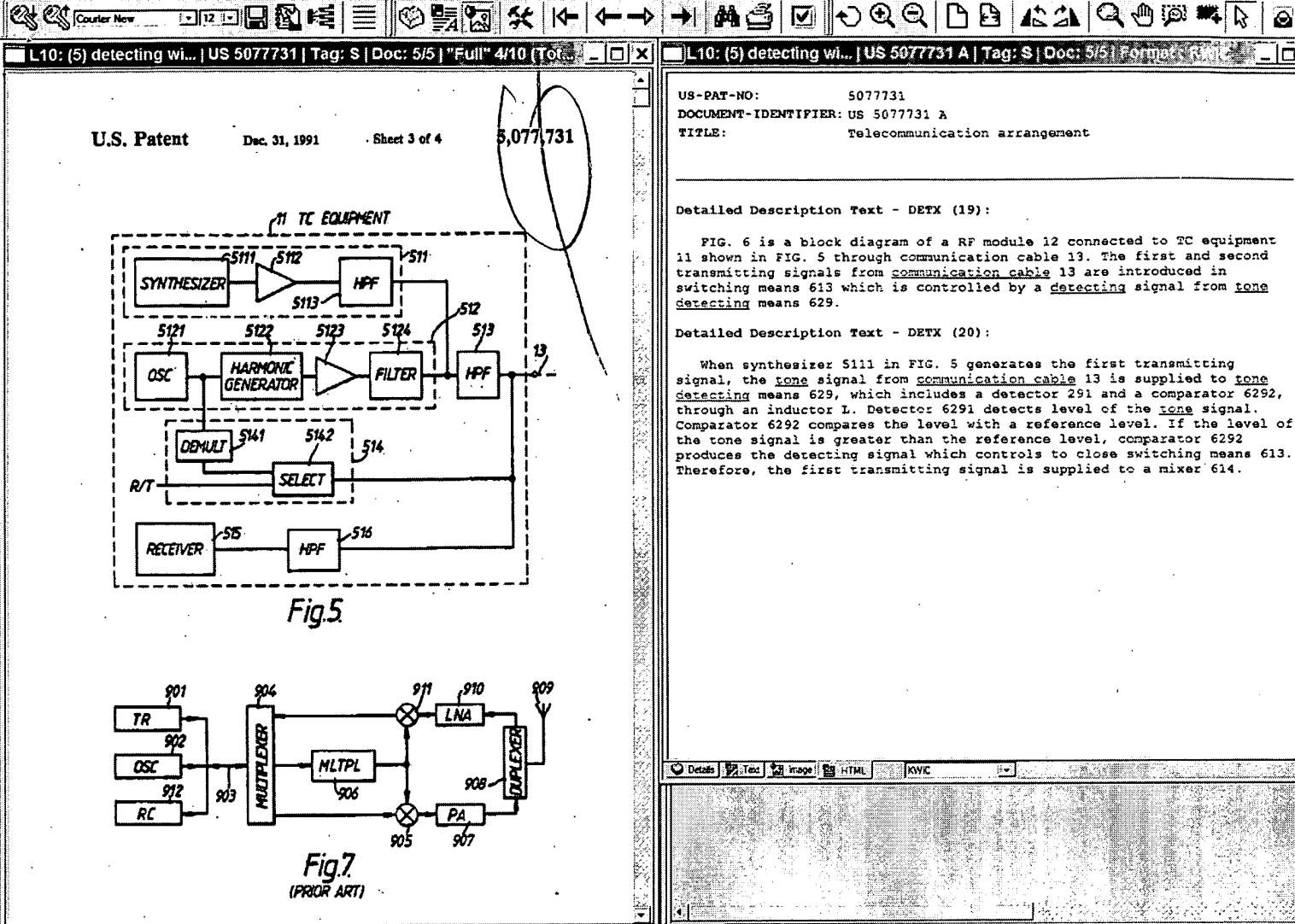
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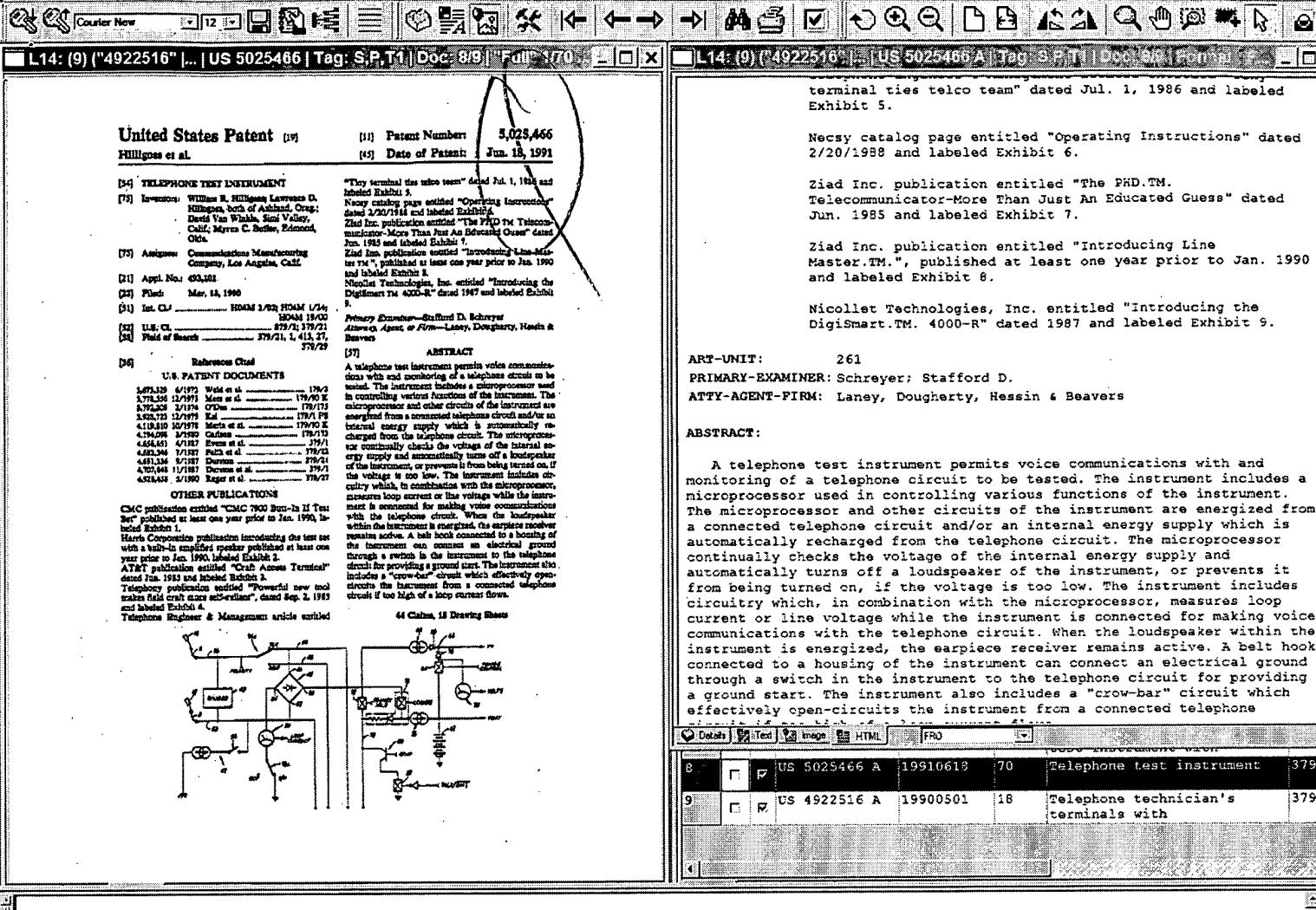
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L14: (9) ("4922516" ... | US 5193108 | Tag: S.P.T1 | Doc: 7/9 | "Full" 1/23

United States Patent [19] US5193108A

Stocklin [11] Patent Number 5,193,108

[45] Date of Patent Mar 9, 1993

[54] PORTABLE TELECOMMUNICATIONS TEST INSTRUMENT WITH INDUCTIVE PROBE CIRCUIT

[71] Inventor Clay A. Stocklin, Redmond, Wash.

[72] Assignee Lorain Manufacturing Co., Inc., Little Neck, N.Y.

[21] Appl. No. 771,457

[22] Filed Oct. 4, 1991

[31] Int. Cl. H04M 1/26

[52] U.S. Cl. 379/21, 379/457, 324/213

[33] Field of Search 379/21, 6, 22, 24, 25, 379/26, 32, 1, 457, 324/213

[56] References Cited U.S. PATENT DOCUMENTS

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4,603,110 7/1986 Feldman et al. 379/21

Primary Examiner—Stafford D. Schreyer  
Attorney, Agent, or Firm—Seed and Berry

4 Claims, 8 Drawing Sheets

L14: (9) ("4922516" ... | US 5193108 A | Tag: S.P.T1 | Doc: 7/9 | "Full" 1/23

FIELD-OF- 379/21; 379/6; 379/22; 379/24; 379/25;  
CLASSIFICATION-SEARCH: 379/26; 379/30; 379/1; 379/457; 324/555  
\*\*See application file for complete search history\*\*

REF-CITED:

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PAT-NO ISSUE-DATE PATENTEE-NAME US-CL

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4,292,480 September 1981 Sweet 379/21 N/AN/A

4,603,110 July 1986 Feldman et al. 379/21 N/AN/A

ART-UNIT: 264

PRIMARY-EXAMINER: Schreyer, Stafford D.

ATTY-AGENT-FIRM: Seed and Berry

ABSTRACT:

A handheld, battery-powered telecommunications test set which combines the function of tone generator and inductive input probe along with functions such as resistance measurement and continuity/discontinuity. The inductive input is coupled to one input of a differential amplifier, which is susceptible to oscillations caused by leakage currents in the circuits performing other functions. During operation of the inductive input monitor probe, some of these circuits are inactivated, but may still have some leakage current that could flow through them, causing oscillation. Additional circuit elements are added to provide a low resistance pathway to a second input of the differential amplifier to shunt leakage currents from the inactive circuit to the differential amplifier such that the leakage currents are converted from a differential signal to a common mode signal and are not amplified. The instrument provides high impedance inputs on circuits which are active when the monitor probe is also active to reduce the leakage currents into the active circuits to an acceptable level.

4 Claims, 17 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 8

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4						379/

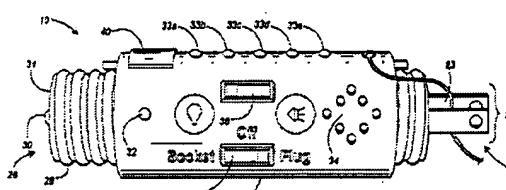
L14: (9) ("4922516" |...| US 6020822 A | Tag: S | Doc: 5/9 | "Full" 1/6 | FRO | X |

United States Patent (13) **6,020,822**  
Marshall

(11) Patent Number: **6,020,822**  
(45) Date of Patent: **Feb. 1, 2000**

(54) CIRCUIT TESTER  
(76) Inventor: Forrest A. Marshall, 615 Academy Ave., Dublin, Ga. 31021  
(21) Appl. No.: 09/128,756  
(22) Filed: Aug. 5, 1998  
(60) Related U.S. Application Data  
(61) Provisional application No. 60/053,319, Aug. 6, 1997.  
(31) Int. Cl.: **G01R 31/00**  
(32) U.S. Cl.: **340/654; 324/556; 324/131; 324/555; 324/72.5**  
(38) Field of Search: **340/654; 324/556; 324/131; 324/555; 114, 155, 156, 157, 72.5, 509; 379/21; 73/866.5**  
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U.S. PATENT DOCUMENTS  
4,041,530 8/1977 Epstein **324/556**

(57) ABSTRACT  
A circuit tester which allows the testing of electrical outlets, telephone circuits and light bulb sockets. The circuit tester is cylindrical with two circuit probes. The first probe is a conventional two-prong electrical plug and the second is a conventional male light bulb connector. A standard telephone jack socket is provided on the side of the cylinder.



4 Claims 3 Drawing Sheets

L14: (9) ("4922516" |...| US 6020822 A | Tag: S | Doc: 5/9 | Format: FRO | X |

TYPE **IPC DATE**  
CIPS **G01 R 19/155 20060101**  
CIPS **G01 R 19/145 20060101**

US-CL-ISSUED: **340/654, 324/556, 324/131, 324/156, 324/72.5**

US-CL-CURRENT: **340/654, 324/131, 324/156, 324/556, 324/72.5**

FIELD-OF-CLASSIFICATION-SEARCH: **340/654; 324/556; 324/131; 324/156; 324/157; 324/72.5; 324/508; 379/21; 73/866.5**  
\*\*See application file for complete search history\*\*

REF-CITED:

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5887051	March 1999	Sullivan et al.	379/21 N/A/N/A

ART-UNIT: **276**  
PRIMARY-EXAMINER: Lieu, Julie  
ATTY-AGENT-FIRM: Russell, Dean W. Kilpatrick Stockton LLP

ABSTRACT:  
A circuit tester which allows the testing of electrical outlets, telephone circuits and light bulb sockets. The circuit tester is cylindrical with two circuit probes. The first probe is a conventional two-prong electrical plug and the second is a conventional male light bulb connector. A standard telephone jack socket is provided on the side of the cylinder.

6 Claims, 3 Drawing figures

Exemplary Claim Number: 1  
Number of Drawing Sheets: 3

Details	Text	Image	HTML	FRO	
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					379/